An update on a record breaking June

Description

The spell of weather at the end of June and into July is without doubt a notable heatwave for the UK

On Monday 2nd July we released our provisional climate statistics for June: an exceptional month resulting in a number of new climate records, including the warmest June on record for Wales and Northern Ireland.

A provisional national high temperature record for Scotland was also set with an observation of 33.2 °C recorded at Motherwell, Strathclyde Park on the afternoon of 28th June. Temperatures in the low 30s were observed at a number of sites in the central belt of Scotland, with 31.9 °C at Glasgow, Bishopton, and 33.0 °C was also recorded in Wales at Porthmadog, Gwynedd. Making it undoubtedly the hottest day of the year so far for the UK. However subsequent information has cast some doubt on the Motherwell measurement for that day, meaning that we will not be able to accept it as an official new record for Scotland, which will remain as 32.9 °C at Greycrook, Scottish Borders from 9th August 2003.

How do we verify records

Dr Mark McCarthy is the head of the Met Office's National Climate Information Centre. He said: "At the Met Office we manage a network of weather observing sites across the UK. This network is comprised

of approximately 259 automatic weather stations managed by Met Office and a further 160 manual climate stations maintained in collaboration with partner organisations and volunteer observers. We have previously written about how our temperature records are measured and verified.

“At first review the Motherwell record appeared plausible given the wider conditions on the day and was therefore reported as such. However for all new records we undertake further careful investigation to ensure that the measurement is robust. This investigation includes statistical analysis of the station data, evaluation against neighbouring sites, and in some cases an additional site visit to check for unexpected issues with the instrument enclosure or equipment to ensure the measurement meets our required standards.”

Why has it been rejected?

Unfortunately in this particular instance we have evidence that a stationary vehicle with its engine running was parked too close to the observing enclosure and the Stevenson screen housing the thermometers during the afternoon of 28th June. Although the measurement appears plausible given the weather conditions that day we cannot rule-out the potential for contamination of the measurement by this non-weather-related factor.

The Met Office works closely with collaborating organisations who host or manage weather stations on our behalf. The observing site at Motherwell makes a very valuable contribution to our observing network, and the rejection of this particular record does not detract from that or from the hard work of those making the observations. We will continue to work closely with our partners at the site, and across our network, to maintain a high-quality climate-observing network for the nation.

What does this mean for the June heatwave?

The spell of weather at the end of June and into July is without doubt a notable heatwave for the UK, and particularly for Scotland and Wales, with some very high temperatures on 28th June. The rejection of the Motherwell observation for that day does not detract from that. More detail about June and other statistics can be found on our climate pages

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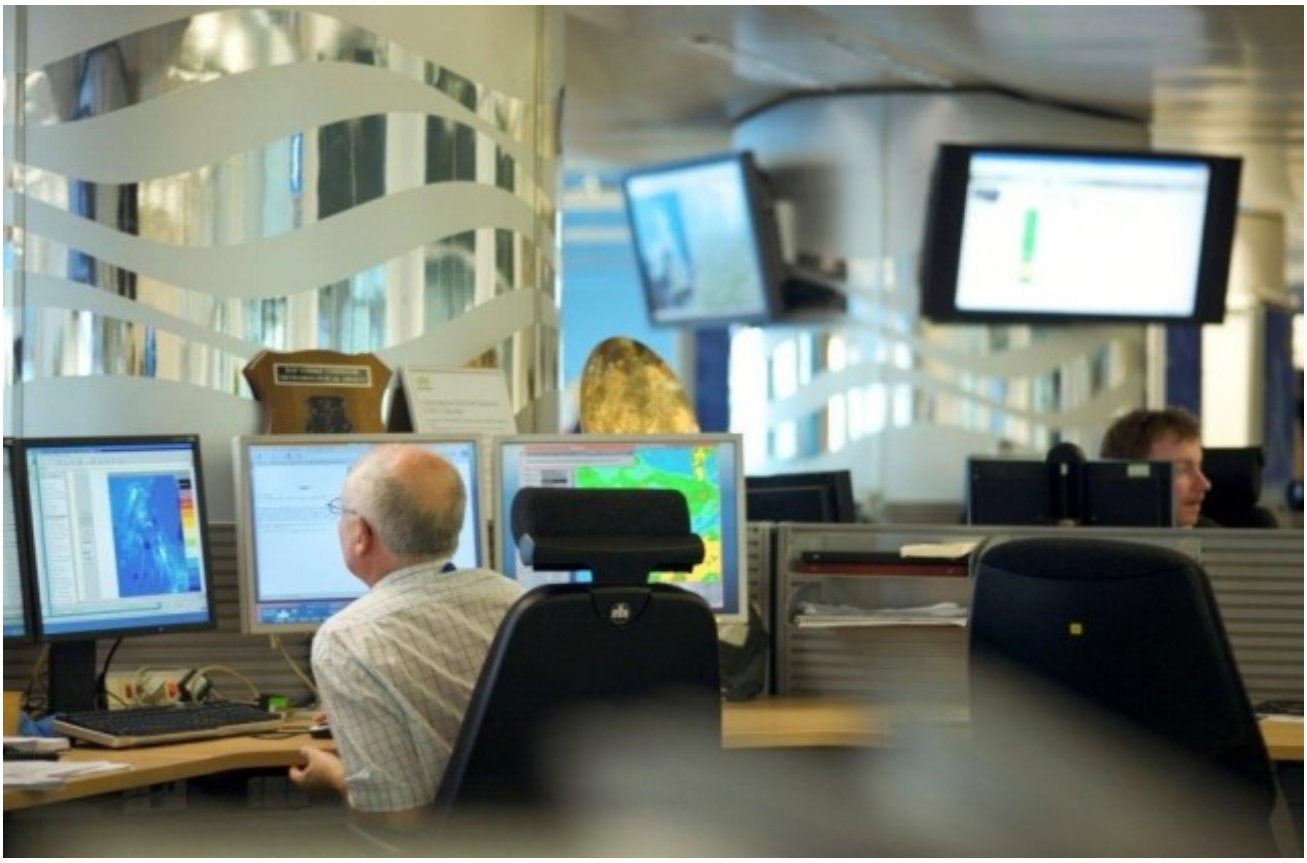
July 2018

Leaving no stone unturned in hurricane preparedness

Description

With hurricanes developing in the Atlantic Basin, Gavin Iley, Met Office Head of International Crisis Management & Resilience, provides a personal account of how the Met Office works tirelessly to ensure its hurricane advice is ‘useful, useable and used’.



With a 24-hour operation, the Met Office Operations Centre can always provide the most up-to-date guidance.

Earlier this year I met a colleague from the meteorological service on one of the islands devastated by Hurricane Maria. They described how they walked to work on the day Maria hit, knowing that the storm was coming and its potential impact. They had left their family behind in the full knowledge that it could be the last time they saw them alive. They had chosen, however, to serve their community, going to work to continue to provide the critical meteorological advice, which could perhaps help save lives. Thankfully, the story for this family had a happy ending. Sadly, others were not so fortunate.

As Hurricane Maria and others tore through the Caribbean last year, my colleagues here at the Met Office worked tirelessly to ensure the UK Government had the most up to date and accurate meteorological information available. This included briefing into emergency meetings chaired by the UK Prime Minister and Foreign Secretary, configuring experimental models to ensure we left no stone

unturned in our meteorological analysis, and pulling in additional staff to support our operational teams. Looking back at the response now it was unrelenting and extremely stressful, especially when as a civil servant you're expected to brief the most senior of UK Government officials. But reflecting on the story above, our stress was of course minor compared to the experiences of Caribbean islands' residents.

This year the Met Office continues to play a crucial role in the UK Government's efforts to ensure British Overseas Territories in the Caribbean are supported to be as well prepared for the hurricane season as possible. While we can hope for a quieter season, we've re-doubled our efforts, working alongside colleagues in the Foreign and Commonwealth Office, the Department for International Development and the Ministry of Defence (amongst others) to make sure we are ready to respond if and when required.

From a Met Office perspective we have looked at best practice from elsewhere to develop new briefing mechanisms, specifically designed to support the enhanced crisis monitoring and response systems in Government for the 2018 season. These briefings draw on the same world-class information, but are presented in a new easy-to-use format tailored for the needs of emergency planners and responders in Government. These briefings are complemented by the wider expertise available 24 hours a day, 365 days a year from the Met Office.

To quote a term often used by those providing information in the disaster management and response sector, making sure our information and advice is 'useful, useable & used' is critical. If we can achieve this for the 2018 hurricane season, then the Met Office, along with our meteorological colleagues in the region, can even better support those at the front end of disaster preparation and response efforts and therefore continue to save lives.

To watch a video on how the UK is preparing for the hurricane season in the Caribbean, please click here.

Date Created
July 2018

The summer so far

Description

As we are all aware this summer has been hot and dry so far and there has been much speculation comparing the season so far to record-breaking summers of the past.

But has it been as hot and dry as we think?

As we reach the midpoint of the meteorological summer (June, July and August) we take a look back at the weather statistics and see how 2018 compares so far.

As a whole, the UK has received just 47 mm of rain so far this summer (1 June – 16 July), making it the driest start to summer in modern records which date back to 1961, closely followed by 2013 with 59 mm of rain. However in 2013 although the first half of summer was very dry an outbreak of thunderstorms and a few very wet days in late July changed things for many leaving the summer of 2013 as a whole the 14th driest on records (dating back to 1910).

So what would happen if the rest of this summer were average? Well if rainfall was average for the next month and a half by the end of August, we would be up to 174 mm, which would just sneak into the top 10 driest summers of all time.

Figures from 1 June 2018 to 16 July 2018 compared against the full summer averages (June-July-August)

Regions	max act	max anom	sun act	sun anom	precip act	precip anom
UK	20.9C	2.4C	385 hrs	76%	47.1mm	19.5%
England	22.5C	2.4C	418 hrs	75%	21.1mm	10.9%
Wales	21.6C	3.1C	419 hrs	80%	29.4mm	10.3%
Scotland	18.4C	2.1C	328 hrs	77%	91.7mm	30.1%
N.I.	20.3C	2.4C	348 hrs	82%	66.0mm	25.9%
N Eng	21.1C	2.3C	397 hrs	78%	40.6mm	17.9%
S Eng	23.2C	2.4C	429 hrs	73%	10.8mm	6.1%
N Scot	17.3C	1.9C	294 hrs	76%	90.5mm	28.8%
E Scot	18.9C	2.1C	335 hrs	75%	71.8mm	28.7%
W Scot	19.4C	2.6C	367 hrs	81%	114.6mm	32.6%

Taking the summer as a whole (June, July and August) across the UK, 1995 is the driest on record (dating back to 1910) with a total rainfall over the full three months of 103 mm.

Rainfall in June was below average across England with only 15 mm, just a quarter of the average rainfall for the month, with the lowest rainfall in the south east, making it the third driest June on record

for England (since 1910) and the driest June since 1925.

Paul Hickey, head of water resources, Environment Agency, said: “Over two very dry months, we have seen a rapid decline in reservoir levels in the North West and we support the announcement by United Utilities to manage water supplies by introducing household restrictions.

“Across the rest of England, most groundwater supplies are at healthy levels and water companies have enough water to maintain supplies if resources are managed properly.

“Many rivers around the country have dropped to lower levels than normal for this time of year, which can be damaging to wildlife. We have robust plans in place to respond to these pressures and have stepped up our incident response as well as regulation of those abstracting water to ensure the environment is protected.

“We are meeting with affected groups including farmers to provide practical advice about conserving water and planning for prolonged dry weather. We encourage everyone to use water wisely to conserve supplies and protect the environment.”

Many people’s visions of 1976 are of the drought and stand pipes in the street but it’s important to remember 1976 came after a previous sunny summer of ’75 and also a very dry 12-month period.

The temperatures so far this summer have also been remarkable. So far (1 June to 16 July), the average daily maximum temperature across the country is 20.9 °C. The average daily maximum in the hottest summer on record, 1976, was 21.0 °C. If the rest of the summer is average, 2018 will certainly rank in the top 10 warmest summers on record and if we continue to see above average temperatures, it could well be record breaking.

The Environment Agency, SEPA, Natural Resources Wales and Northern Ireland Environment Agency all have advice on water conservation.

1976 was also the sunniest summer on record with 669 hours. So far we’ve had 385 hours of sunshine on average across the UK this summer, however, statistically there are fewer sunshine hours in the second half of summer as the days are getting shorter. If the rest of the summer was average, we would still be in the top five sunniest summers on record.

It is important to remember we are only half way through the season and a lot can change.

You can find the current forecast for your area using our forecast pages, by following us on Twitter and Facebook, or using our mobile app which is available for iPhone from the App store and for Android from the Google Play store.

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July 2018

Medal for Met mathematician

Description

A leading Met Office climate scientist has been awarded the Copernicus Medal, a prestigious international award for pioneering research.

Professor Adam Scaife, Head of Monthly to Decadal Prediction at the Met Office – who is also Professor of applied mathematics at the University of Exeter – was chosen as the winner by the international judging panel for his research into the causes, simulation and prediction of climate variability.

Presented with the medal at a ceremony during the Royal Meteorological Society's Atmospheric Science Conference, Adam said: "I am truly delighted to receive this award. It is encouraging and humbling to have my work recognised in this way and I want to acknowledge the dedication and hard work of all of my collaborators and everyone in my research group. Together, we have uncovered exciting new results on long-range predictability of the atmosphere."

Adam's research group issues climate forecasts on a regular basis and develops long range predictions for adaptation to climate variability and change. He carries out research on climate variability and has published more than 150 peer-reviewed articles on the mechanisms, improved computer modelling and predictability of regional climate. His group recently made an important

breakthrough in seasonal forecasting which allows skilful prediction and new applications of long range forecasts for Europe and North America.

The Copernicus Medal is presented annually by an international and interdisciplinary panel. It recognises ingenious and innovative work in the geosciences, planetary and space sciences, and exceptional efforts in international collaboration in scientific research.

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July 2018

Summer temperature 2018 – the ‘new normal’?

Description

The Met Office Chief Scientist, Professor Stephen Belcher, appeared on BBC Newsnight on Tuesday evening to talk about current extreme temperatures and climate change.

The interviewer Emily Maitlis asked if the current hot temperatures we are seeing can be considered the ‘new normal’. Certainly, there can be no doubt that the summer of 2018 has been remarkable both in the UK and across the world.

Professor Brian Hoskins, Chair of the Grantham Institute, Imperial College, and of University of Reading, spoke on the BBC World Tonight on Tuesday and also spoke about the links between the current heat wave and climate change.

Here Stephen and Brian give a perspective on the heat wave and its connections to climate change.

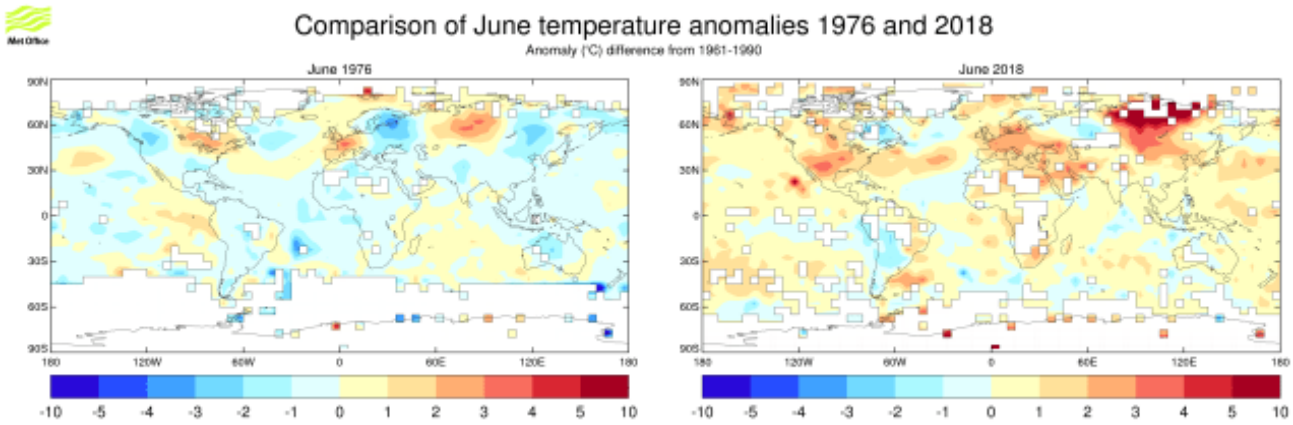
In the UK the hot weather has been with us on and off since April. Some parts of East Anglia and southeast England have had virtually no rain in more than 55 days, and we may see our all time highest temperature record of 38.5C fall by the end of this week.

The Arctic Circle has seen temperatures top 30C, including at Badufoss and Makkaur in Norway, and in Finland temperatures have hit 33.4C.

Meanwhile in Japan on Monday, the city of Kumagaya reported a new record temperature for the country, 41.1C, and temperatures have exceeded 40C in central Tokyo for the first time ever and there have been reports of many people being taken sick with heat stroke.

Naturally people are asking whether this is a result of climate change – is this the ‘new normal’. So what can we say?

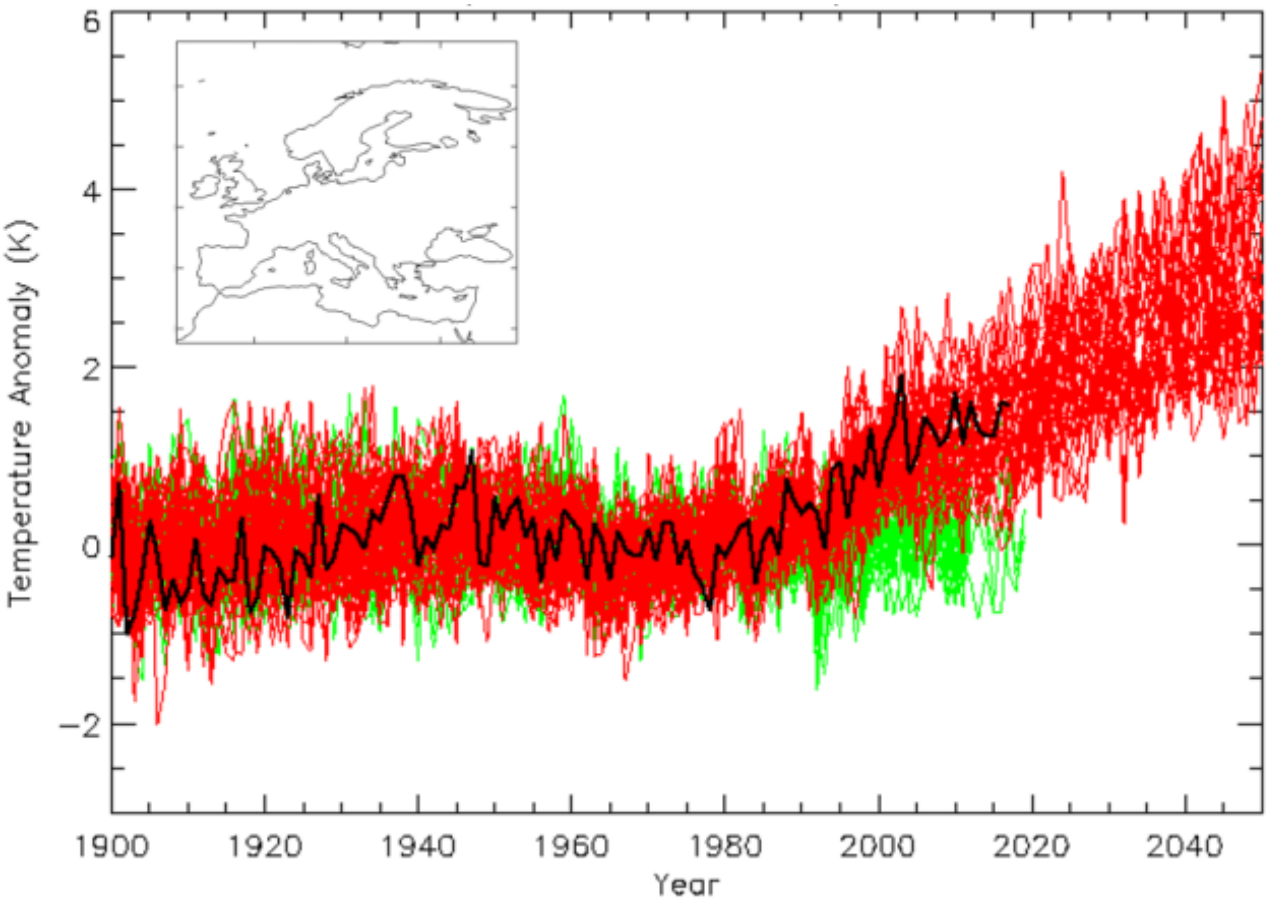
Well, the atmospheric patterns leading to the UK heat wave do occur in the natural cycles in the weather, but they have been unusually persistent. The jet stream has weakened and got stuck to the north of the UK, with high pressure settled over the UK and Europe. In the summer such a pattern leads to dry soils, which means that if the sunny weather continues the energy of the sun is not used up in evaporating water and the temperatures rise even more.



Comparison of 1976 and 2018 June temperature anomalies, based on Met Office HadCRUT4 data set

In addition, we've seen a background of global warming due mostly to increased atmospheric greenhouse gases, with global mean temperatures rising more than 1C above pre-industrial levels, and even more so over the northern continents. The natural cycles of weather mean that we shouldn't expect heatwaves like this to happen every year but, when we do experience them, the warmer world means that there is an increased risk of even higher temperatures.

In 2003 Europe also experienced a pronounced heat wave. Research led at the Met Office showed that greenhouse gas concentrations in the atmosphere doubled the chance of the temperatures recorded in 2003 compared to what we'd expect in a pre-industrial world. This research also concluded that by the 2040's the temperatures we saw in Europe in 2003 could be fairly normal in summer. We have updated this prediction with more recent data, and found that this prediction is still on track: the extreme temperatures we saw in the summer of 2003 can be expected to occur more regularly in Europe by the 2040s.



Summer mean temperature anomalies over Europe (area in enclosed box) from CRUTEM4 observations (black), climate model simulations from CMIP5 (following RCP8.5) which include all forcings including greenhouse gases (red) and with only natural forcings (green). If greenhouse gas emissions are reduced to zero by 2050 the growth in temperature would cease

At the Met Office, in collaboration with the Universities, we are carrying out a detailed analysis of this particular heatwave and its expression in a warming world. We're aiming to understand why the weather pattern this summer was so persistent, and to what extent this persistence may be influenced by human-induced climate change, as well as the role of global warming by greenhouse gases in raising the temperatures experienced in the heat wave. We'll publish our findings later in the year.

The temperatures we are currently experiencing may not yet be the 'new normal', but within a few decades they could be.

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